

**BY ORDER OF THE COMMANDER
434TH AIR REFUELING WING**

**434TH AIR REFUELING WING
INSTRUCTION 21-104**



22 AUGUST 2011

Incorporating Change 1, 18 SEPTEMBER 2012

Maintenance

***FOREIGN OBJECT DAMAGE
PREVENTION/DROPPED OBJECT
PREVENTION PROGRAMS***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publication and forms are available for downloading or ordering on the e-publishing website at www.e-publishing.af.mil/

RELEASABILITY: There are no releasability restrictions on this publication.

OPR: 434 MXG/QA

Certified by: 434 ARW/CV
(Col Brian J. Reinhardt)

Supersedes: 434ARWI21-104,
19 November 2008

Pages: 9

This instruction implements Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*, and should be used in conjunction with Air Force Instruction (AFI) 21-101/AFRC Sup, *Aircraft and Equipment Maintenance Management*, Air Force Occupational Safety and Health Standard (AFOSH) 91-100, *Aircraft Flight Line - Ground Operations and Activities*, AFI 91-204, *Safety Investigations and Reports* and any applicable Major Command (MAJCOM) directives. It establishes procedures and provides policy to implement the Foreign Object Damage (FOD) Prevention Program and the Dropped Object Prevention Program (DOPP) for Grissom Air Reserve Base (ARB). It applies to all squadrons, units, detachments, temporary duty organizations, support squadrons, contractors, and personnel who maintain aircraft, associated equipment, or have access to the flight line or maintenance areas. **Note:** Contract Field Teams (CFT) under contractual obligations will comply. If conflicts exist between the contract technical order of specification and this instruction, the provisions of the contract technical order of specification shall prevail. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, *Recommendation for Change of Publication*; route AF Form 847s from field through Major Command (MAJCOM) publication/forms managers. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://www.mv.af.mil/gcss-af61a/afirms/afirms>. The use of the name or rank of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This interim change implements new guidelines that clarify requirements on vehicle operators will stop and perform FOD checks at all flight line entry points, including Building 600 and changing the Certifying Official.

1. General:

1.1. The wing FOD prevention program is based on awareness and training with continuous individual and supervisory involvement. Professionalism and discipline are the keys to any successful program. The overall program objective is "ZERO FOD."

1.2. Ensure the area is free of FOD and secure or remove loose items (maintenance stands, support equipment, tool boxes etc.) from the aircraft danger area before engine start.

1.3. Ensure dumpster lids are kept closed and the area is kept clean at all times.

2. Flight Line FOD Prevention:

2.1. Unnecessary flight line vehicle traffic is not authorized.

2.2. Vehicle operators will stop and perform FOD checks at all flight line entry points, including Building 600.

2.3. Use a locally manufactured tool to facilitate the removal of FOD from vehicle tires is authorized. If used it will be marked/etched with the vehicle identification number and attached to the vehicle key ring.

3. FOD Prevention Walks:

3.1. Each unit is responsible for specific FOD prevention walk areas. These include areas immediately surrounding their buildings, grass areas, taxiways, and Entry Control Points (ECP) that are adjacent to their areas of responsibility. Areas of responsibility for FOD walks are as follows:

Table 1. Areas of Responsibility for FOD.

AMXS / MXS	MPA and 592 and 600 ramps. Hangar areas (all paved areas to include policing grassy areas for trash)
Aerospace Ground Equipment(AGE) Flight	Building 593 and the AGE parking areas (front and back)

3.2. Squadron commanders will ensure a FOD prevention walk is completed in their areas of responsibility before 0830 Sunday each UTA.

3.2.1. For Non UTA weeks the FOD Walk will be conducted on Friday afternoon following aircraft launches.

3.2.2. If for some reason FOD walks are not completed as required, the Quality Assurance (QA) office will be notified.

3.3. Maintenance Group (MXG) flight and section chiefs will take the lead and direct the FOD prevention walk.

3.4. All available personnel will participate in the FOD prevention walk.

- 3.5. Perform FOD prevention walk after heavy rains or high winds.
- 3.6. Perform FOD prevention walk following all ramp, taxiway, or runway construction. This FOD prevention walk will be normally coordinated by the wing FOD prevention monitor.
- 3.7. Crew chiefs, specialists, and aircrew are responsible for the ramp area around their aircraft. Inspect aircraft areas for FOD each day and before any engine start or taxi. Then spot check area again after aircraft taxis out of the spot.
- 3.8. Base operations personnel inspect the taxiways and runways daily for foreign objects.
- 3.9. Real Property Maintenance (RPM) is responsible for sweeping aircraft parking and movement areas a minimum of once a week. If additional sweeping is needed a request should be made through Base Operations.

4. FOD Prevention Training:

- 4.1. FOD Prevention Training starts with the initial orientation in which FOD should be briefed and continues throughout skill certification and annual refresher courses. At a minimum, training consists of the items listed in this instruction.
- 4.2. Initial Training: The work center supervisor gives all newly assigned personnel an initial FOD prevention awareness briefing before performing duties on the flight line or in maintenance areas. Document this briefing as part of the individual's initial evaluation in the member's training record. This briefing includes common causes of FOD peculiar to Grissom ARB, squadron policies, hardware and tool control policies, individual responsibility to prevent FOD, operating vehicles in flight line area, control of personal items, equipment and consumables, and housekeeping (clean as you go).
- 4.3. Task Training: Ensure FOD prevention training is part of all task certifications.
- 4.4. Annual Training: Maintenance Training Flight incorporates FOD prevention training for maintenance personnel during annual maintenance training.
- 4.5. Operations Group will incorporate FOD prevention training for operations personnel during annual aircrew training.

5. FOD Prevention Program Responsibilities:

- 5.1. All personnel who enter the flight line (includes maintenance, aircrew, petroleum oil and lubricant (POL), security police, aerial delivery, and contractor personnel) are responsible for making the flight line and aircraft maintenance areas FOD free.
- 5.2. Individual responsibilities for the FOD Prevention program are to be accomplished as designated in AFI 21-101/AFRC Sup.
- 5.3. Additional Responsibilities:
 - 5.3.1. The squadron prevention representative will:
 - 5.3.1.1. Maintain a FOD prevention bulletin board.
 - 5.3.1.2. At a minimum, display the wing goals, FOD Program Monitor information and any available current FOD information.

5.3.1.3. Focus squadron FOD prevention training efforts to ensure complete quality training at the lowest level possible.

5.3.1.4. Work with squadron supervision and personnel to address problem areas at the squadron level.

5.3.1.5. Direct/conduct and document the required FOD walk of their identified areas of responsibility.

5.3.1.6. Notify the FOD program manager and program monitors Quality Assurance (QA) in the event a FOD council representative changes, to ensure the flow of communication is maintained.

5.3.2. The FOD monitor will:

5.3.2.1. Periodically inspect for damaged pavement, flight line construction, or other hazards in or near aircraft parking ramps or taxiways and report findings to the airfield manager.

5.3.2.2. Monitor repair status and report those repair actions at the quarterly committee meeting.

5.3.2.3. Act as liaison between the Wing (WG)/Vice Commander (CV) and airfield manager and other agencies for coordination of FOD prevention needs. The WG/CV will be notified via e-mail of any actions needed or taken concerning construction in progress on or near the flightline or other areas where FOD incidents may occur.

6. FOD mishap investigation and reporting:

6.1. The initial FOD incident is reported to Maintenance Operations Center (MOC) immediately when discovered and followed up with the completion of an aircraft incident report.

6.2. MOC then reports all FOD incidents to QA; an AFRC Form 42, *Foreign Object Damage (FOD) Mishap Investigation Checksheet*, is generated in the Qanttas data base program.

6.3. The initial FOD incident report will be reported to Numbered Air Force (NAF) FOD Manager no later than the next duty day after the occurrence.

6.4. All applicable sections (safety, jets, QA etc.) investigate IAW AFI 21-101/AFRC Sup and complete AFRC Form 42, with emphasis on investigation, action taken, and any underlying root problems which may cause incident to reoccur.

6.5. When engine FOD is identified, other than minor sand nicks or scratches, prior to blade blending notify QA and ensure it is evaluated or repaired and documented in the AFTO IMT 95, *Significant Historical Data*, IAW AFI 21-101/AFRC Sup.

6.6. Completed AFRC Form 42 will be forwarded to WG/CV to be reviewed and analyzed for trends as indicated by block 8 of the form, then forwarded to Air Force Reserve Command (AFRC) and NAF FOD managers within 30 days.

6.7. Comply with all reporting procedures as directed AFI 21-101/AFRC Sup.

6.8. Investigation findings of all FOD incidents will be briefed to FOD prevention committee and reviewed.

7. FOD Prevention Assessment Program:

7.1. FOD prevention will be considered during all applicable QA assessments as a supporting area.

7.2. FOD Walks will be assessed at a minimum monthly.

7.3. The Wing FOD monitor/QA will perform non-rated management inspections of vehicles entering the flightline area for compliance of FOD checks at a minimum monthly.

7.4. The data from paragraphs 7.1 through 7.3 will be compiled for trend analysis at the quarterly FOD meeting.

8. Base Quarterly FOD Prevention Meeting:

8.1. A base quarterly FOD prevention meeting will normally be held on primary UTA's . The quarterly FOD meeting will be chaired by the FOD Manager when available; in his/her absence the meeting will be chaired by the MXG/CC. The FOD representatives include but are not limited to group commanders, directors, commanders of units with maintenance personnel, safety, Civil Engineering (CE), airfield manager and security forces or alternates are required to attend; agenda and times will be emailed to committee members.

8.2. Monthly FOD meetings will be conducted when the unit exceeds the established standard as set forth in AFI 21-101/AFRC Sup, until those problems resulting in FOD can be resolved.

8.3. When the WG/CV cannot be present at the quarterly meeting, all program data will be provided via e-mail for his review and comment.

9. Special Interest Items:

9.1. Perform all aircraft engine runs above idle on spots designated by the MXG/CC.

9.2. Report FOD discovered on pre and post engine run inspection immediately to the expeditor.

9.3. Flight line clothing policy: Any loose clothing or hats will be removed or secured prior to entering the danger area of an operating jet engine as defined by the applicable aircraft T.O. (The KC-135R is within 25 feet of the aircraft engine inlet, and 180 feet of aircraft exhaust at engine idle and 50 feet of the engine inlet and 900 feet from engine exhaust at Takeoff Rate Thrust (TRT) ground operations.)

9.3.1. Metal insignias/badges, wigs, hairpieces, metal hair fasteners, earrings, rings or any other jewelry that may fall off without notice and become FOD are not authorized on the flight line. **Note:** per AFI 21-101/AFRC Sup, watches, unless restricted by technical guidance or Air Force Occupational Safety and Health Standard (AFOSH)/Occupational Safety and Health Administration (OSHA) standards, are excluded from this restriction. (Exception: During controlled functions (i.e., Change of Command Ceremonies, Retirements, or Commander Calls) held in a hangar – these items are permitted from the gate to inside hangar ONLY, with a FOD Inspection of the hangar area following the event).

9.3.2. Restricted area badges will be secured IAW AFI21-101/AFRC Sup and removed when performing any maintenance in the aircraft engine intake or exhaust areas.

9.3.3. Passes will be secured to eliminate loss.

9.3.4. Escorts of visiting personnel will insure all FOD prevention measures are met.

9.3.5. See 434ARWI 13-201, *Base Airfield Operations*, for additional information.

9.4. Ensure elimination of foreign objects in aircraft cockpits and flight decks prior to flight. See LCL-434ARW-10-1.

9.4.1. While completing the required aircraft panel and FOD inspections prior to flight, additional attention will be given to the aircraft flight deck area for cleanliness to remove any loose debris.

9.4.2. Pilots and aircrew members must account for all equipment and personal items after each flight and ensure any items that become lost during flight are documented in the AFTO Form 781A, *Maintenance Discrepancy and Work Document*, as directed by AFI 21-101/AFRC Sup.

10. Incentive Program:

10.1. Wing FOD prevention incentives and awards program is used to promote a vigorous FOD prevention program through recognition of exceptional individual achievement. Encourage competitive programs in FOD prevention between squadrons, flights, sections, and shops.

10.2. Wing FOD Prevention Award.

10.2.1. Nominations for Grissom FOD Fighter Award are submitted by the section supervisor to the FOD Prevention Monitor and should be based on individuals going above and beyond picking up FOD, in FOD Prevention (i.e. finding out what caused the FOD or thinking of innovative ways to prevent and control FOD).

10.2.2. Recognize an individual or his/her duty section as a "FOD Fighter" when he/she demonstrates innovative and effective application of the FOD prevention program. These individuals are recognized at the quarterly meetings.

10.3. Wing Golden Bolt Award. A distinctive 1½" plastic bolt (painted gold) is placed on the flight line or in a maintenance area. The person finding the bolt returns it to the wing FOD prevention monitor and will receive the designated award.

11. Dropped Object Prevention Program (DOPP):

11.1. The DOPP Program is designed to increase individual awareness of dropped object potential, protect critical resources by reducing dropped object incidents, and provide a formal reporting procedure. All personnel in the Maintenance Group (MXG) and Operations Group (OG) with primary responsibilities on the aircraft will participate in this program.

11.2. A dropped object is any aircraft part, surface, or other item lost during aircrew operations, from engine start to engine shutdown.

11.3. Responsibilities are outlined in AFI 21-101/AFRC Sup.

11.4. Additional responsibilities at Grissom ARB:

11.4.1. The Operations Group Commander will ensure flight crews support and participate in the program, primarily by placing special emphasis on aircraft panels, surfaces, and secondary structures during their inspections and reporting any suspected dropped objects during sortie debrief.

11.4.2. DOPP monitor will review and update the DOPP training program annually.

11.4.3. Maintenance Group supervisors will ensure all aircraft maintenance personnel receive annual DOPP training. Training will be documented in GO81.

11.4.3.1. Ensure "second look" inspections and documentation requirements are complied with.

11.4.3.2. Ensure all removed panels are documented with a Red "X".

11.4.4. AMXS Production Supervisor (Pro Super), upon notification of a dropped object will notify the MOC, providing the aircraft tail number and a brief description of the DOPP incident.

11.4.5. The MOC will contact the following: MXG/CC, OG/CC, MXG/QA (DOP Monitor), and the Wing Safety Office.

12. Reporting Procedures:

12.1. DOPP monitor will gather the information to meet AFI 21-101/AFRC Sup and forward to HQ AFRC and the NAF/Logistics Maintenance Section (A4M)

12.2. The DOPP Monitor will use the reporting procedures outlined in AFI 21-101/AFRC Sup. The final report will be submitted to higher headquarters NLT 72 hours after the incident

12.3. The DOPP Monitor will forward copies to the 434 ARW/CC, 434 Operations Group (OG)/CC, 434 MXG/CC, and Wing Safety Office.

12.4. Quality Assurance Superintendent as assigned manages and oversees the prevention of dropped objects and assists in investigating incidents.

12.5. All reports will be included in the Maintenance Standardized and Evaluation Program (MSEP) Report.

12.6. All investigations will be in accordance with AFI 91-204.

WILLIAM T. CAHOON, Col, USAFR
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 91-204, *Safety Investigations and Reports*, 14 February 2006

AFI 21-101/AFRC Sup, *Aircraft and Equipment Maintenance Management*, 29 June 2006

AFMAN 33-363, *Management of Records*

AFOSH 91-100, *Aircraft Flight Line - Ground Operations and Activities*, 1 May 1998

AFPD 21-1, *Air and Space Maintenance*, 25 February 2003

434ARWI 13-201, *Base Airfield Operations*, 31 Oct 07

Adopted Forms

AFRC Form 42, *Foreign Object Damage (FOD) Mishap Investigation Check Sheet*

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

AFTO IMT 95, *Significant Historical Data*

Abbreviations and Acronyms

A4M—Logistics Maintenance Section

AFI—Air Force Instruction

AFOSH/OSHA—Air Force Occupational Safety and Health Standard/Occupational Safety and Health Administration

AFPD—Air Force Policy Directive

AFMAN—Air Force Manual

AFRC—Air Force Reserve Command

AFTO—Air Force Technical Order

AGE—Aerospace Ground Equipment

AMXS—Aircraft Maintenance Squadron

ARB—Air Refueling Base

CE—Civil Engineering

CFT—Contract Field Teams

DK—Dock

DOPP—Dropped Object Prevention Program

ECP—Entry Control Points

FOD—Foreign Object Damage

HQ—Headquarters

IAW—In Accordance With

IMT—Information Management Tool

LCL—Local Check List

MAJCOM—Major Command

MPA—Mass Parking Area

MOC—Maintenance Operations Center

MPA—Mass Parking Area

MSEP—Maintenance Standardized and Evaluation Program

MXG—Maintenance Group

MXS—Maintenance Squadron

NAF—Numbered Air Force

NLT—No Later Than

OG—Operations Group

OPR—Office of Primary Responsibility

POL—Petroleum Oil and Lubricant

PRO SUPER—Production Supervisor

QA—Quality Assurance

QANTTAS—Quality Assurance Tracking and Trend Analysis System

RDS—Records Disposition Schedule

RPM—Real Property Maintenance

TRT—Takeoff Rate Thrust

UTA—Unit Training Assembly

WG/CV—Wing Vice Commander

Terms

GO81— Training tracking program